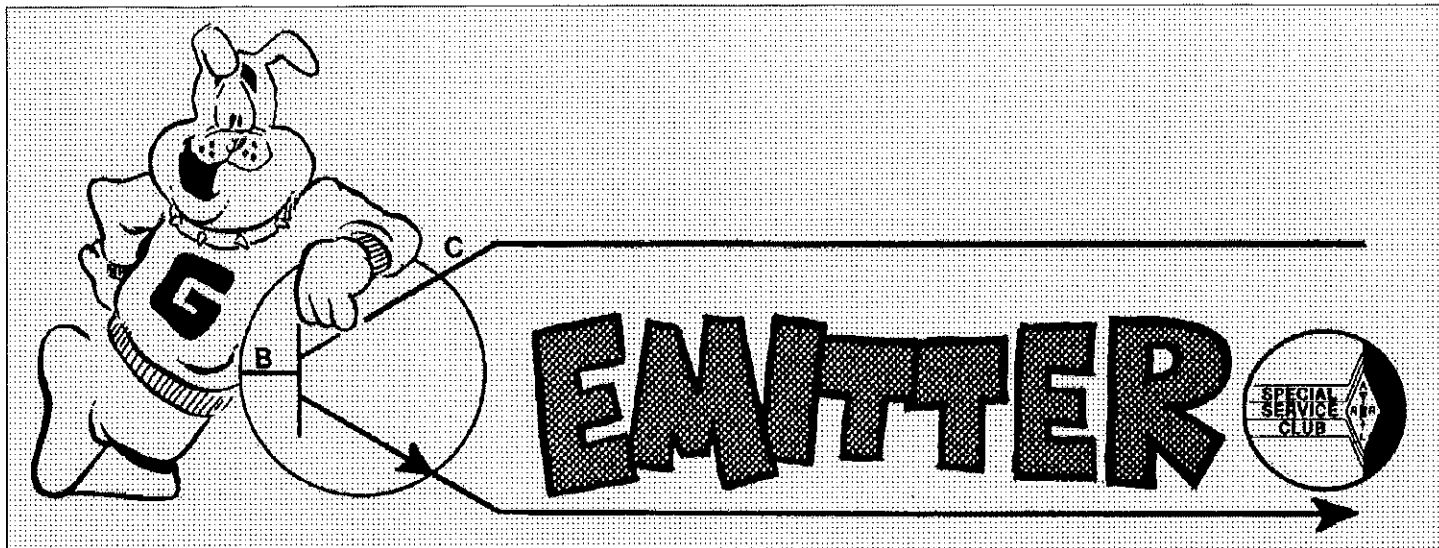




The Athens Radio Club

March 1998

March Meeting— **ANTENNAS**

Do you like high places and consider massive amounts of aluminum with the sky as its backdrop art? Are voices, dits and dahs, and *I*'s and *O*'s captured in a piece of wire magical to you? Do you have a passion for aeri-als? Do you think autos take on a bet-ter look with several antennas rather than just the one AM/FM factory an-tenna?

If you answered "YES! YES!," then don't miss the Athens Radio Club's first ever antenna night!

We're asking members to bring their homebrewed antennas and tell the

group a little about them. You can describe how the antenna was built, where you got the materials, how it performs; you get the idea. If you have a diagram of the antenna with its measurements or any other relevant information you want to copy and hand out, that would be great too.

The session will be practical for newer hams in our group as well as a new idea session for those of us who are "more experienced" (I didn't want to say older). We may also go over the proper way to solder antenna con-nectors if we have time.

Don't be left out! Make sure to bring your radiating beauty on Tuesday, March 3at 7:30 PM and show off

your skill as a top-notch aerial builder. And don't forget, you'll IM-PRESS other club members (yeah right!).

If you have any questions e-mail Greg Brooks at:

gbrooks@waltonemc.com

Club Dues— Due...

Have you paid your club dues yet? If not be sure to do so at the March club meeting. See club treasurer Paul Smith, N4CUA.

Next Meeting

Tuesday

**March 3
7:30 PM**

PROGRAM:

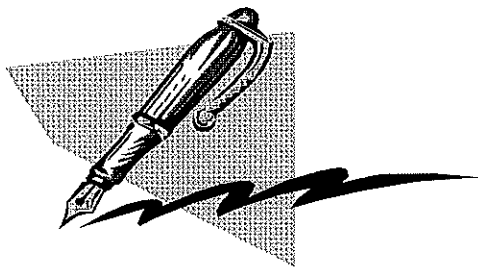
***Antenna
Night!***

**Check the New
ARC WEB page
for the latest
Club News,
Events, Rig
Reviews, plus
Recently added
Skywarn info**

<http://www.qsl.net/wa4bkf>

LATE BREAKING NEWS!

The Athens Radio Club will be providing Communications for The Athens Airshow/ Open House at the Athens-Clarke County Airport, Saturday, **April 25, 1998**. More details upcom-ing on the ARC Web site. If you like airplanes, this is the club operating event for you!



The President's QSO

by N4NFI

Periodically, both on the air and on internet news groups, I hear a discussion as to whether amateur radio is a service or a hobby. Listening to the debate, it has always struck me that much of the argument is off the mark- some "service" proponents can be so grimly serious that you have to wonder why anyone would want to be licensed, while many of the "hobby" proponents don't seem to think that we as a group owe anyone anything for the "right" to use our frequencies. The truth is, hams are engaged in both a service and a hobby, a service by international treaty and federal regulation and a hobby because we enjoy flexibility under the rules to have fun on the radio, however we may individually perceive it.

For some, "fun" is driving back and forth to work ragchewing on the local repeater, while others find it working packet and still others in exchanging signal reports with dx stations. I could go on and on. The point is, this is all legal, harmless and certainly fun for the participants or they wouldn't be doing it. So this must be hobby activity right? Yes, but in its own way it is also service activity because the skills and equipment resources we accumulate in the pursuit of such seemingly frivolous fun can be applied to more significant "service" purposes. Let's look at the other side. Some hams don't do much besides ARES work or they are involved in a RACES group or perhaps MARS. All of these ama-

teurs are undoubtedly motivated by a commendable sense of dedication and service. But at the same time, most if not all of them derive a great deal of satisfaction from the activity. Lets see, they serve voluntarily and it makes them feel good - could be a hobby if they chose to perceive it as such, right? So you see, hams on both side of the service/hobby argument probably have more in common than they know.

Most of us in the club probably fall in the middle on this - we enjoy ragchewing on the repeater, and getting on H. F. just to tune around and see who we can work or perhaps to check into a net, but we also can be counted on to show up and help out with communications for a charity run or perhaps a local festival or parade. Not every time, maybe, but we do our share and generally see it as enjoyable and significant, if not critically important, public service.

There is one other thing most of us can be counted on to show up for. It's not always enjoyable, occasionally it can be stressful and it can be critically important. Sometimes lives could be at stake. Yes, I'm talking about severe weather nets. And this is the season. At last month's club meeting, we were fortunate to receive Skywarn spotter's training. Over the next couple of months we will likely have an opportunity to put that training to use. What, with the sort of rainstorms we have experienced during this El-Nino influenced winter, who knows what spring will hold for our area? Of course, El-Nino or not, any spring in Georgia can be trouble. Perhaps I'm just a little more aware of the danger than normal this year. Either way, let's all try to stay on top of things. Why not take a few minutes each morning to listen to the NOAA weather radio forecast? Most of us can do this on our mobile rigs on the way to work.

This way, if watches or warnings are up we'll know, and even if things haven't reached that point, we may hear a "North and Central Georgia Thunderstorm Outlook" report, which is specifically addressed to spotters and other emergency management personnel on days when the potential for severe weather exists. Also, remember that if watches are issued during the workday, Ken Daniels, WB4QII, will be reporting them on the repeater DVR, once an hour on the hour and starting up the net as required. So, if you can check the repeater and/or NOAA periodically, you should be able to keep well informed. Also, please remember that Ken conducts a Skywarn Practice net most weekday afternoons at 2pm on the club repeater. If your schedule allows, a quick check-in will show your support and help to keep you in practice for the net protocol in the event of the real thing. I should also note that Mike, KS4JU, has updated his Athens Skywarn web pages. These are full of useful information and can be accessed through the club website at <http://www.qsl.net/wa4bkf/>

Let's hope that we have a quiet spring, weather wise. But if things get rough, lets be ready.

73,
Ken, N4NFI

**Don't forget the
ARC Net**

**Tuesdays
8:30 PM**

**ARC
Repeater**

146.745/-



The Emitter

Official Publication of the
Athens Radio Club—Athens, GA
<http://www.qsl.net/wa4bkl>

Don Bullard, WA4IML,
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Club Repeater

WA4BKF 146.745/-

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Term Expires 1998

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Usher Thomason, KN4WK

Term Expires 1999

Ed Riddle, N4ALE

Tommy Strickland, KD4DTV

Term Expires 2000

Bob Herrin, KE4JLL

James Reeves, KF4AQO

Submissions of articles, stories and artwork is encouraged and appreciated. Material should relate to amateur radio or similar subject (computers, electronics, SWL, etc.) and be in good taste.

February Minutes

Athens Radio Club

February 3, 1998

President Ken Schroder, N4NFI, began the meeting with introductions of the 28 members present. The minutes of the January meeting were approved as distributed. Scott Sikes, KD4MSR, reported that of the four persons at the February VE test session, 1 passed novice, 1 novice and tech plus, with 2 nopasses. Scott, Pat KC4BDT, and Ed N4ALE administered the February tests. Paul Smith N4CUA, Treasurer reminded everyone the 1998 dues are now DUE. The club currently has a balance of \$1328.96.

Ken Daniels, WB4QII, has volunteered to coordinate the ARC Severe Weather Net. The net will meet every weekday at 2pm on the ARC repeater 146.745-. The 147.000 repeater will be used as a back-up in emergencies. Please check in regularly whenever you are able.

Wednesday, Feb. 25 will be the annual tornado drill.

Don Bullard, WA4IML, reported the ARC club Ten-Tec kit purchase was a success with \$1000 worth of kits ordered saving the members about \$131 over normal prices.

There should be lots of kit building in the club in the following months.

Phil, KE4TYV, reported that the Athens Radio Club has been granted the Special Service Club Award by ARRL in recognition of the many service activities of our club. Greg, N4ULL, congratulated Don WA4IML, the new newsletter editor on the first e-mail Emitter. Greg also urged all members to utilize the club repeater often. Whenever near you 2M rig announce your presence or answer any calls you hear. Help get to know each other better.

Vice-president, Greg Brooks N4ULL then introduced Ms. Tish Hart the speaker for the evening. Ms. Hart, a meteorologist, with the National Weather Service in Peachtree City presented an advanced Skywarn Storm Spotters training session. She was assisted by Ken WB4QII.

Phil Koehler, KE4TYV, Secretary

Protocol by N4ALE

This article originally appeared in **World Radio** and is reprinted with their permission.

Amateur radio is really a learning experience. We must make ourselves learn how to know what to expect and how to make things go along to our satisfaction. The first way to learn is to listen. This is especially true on high frequency SSB. Some find SSB to be strange sounding. It really isn't if you have the signal tuned in properly.

The second skill to learn is how to speak. Remember amateur radio is not like a telephone. You are not guaranteed to hear and be heard 99% of the time. You've got to learn to speak clearly and distinctly--and sometimes to even slow down. You must learn the proper international phonetics when differentiating between F, S, OR X; V, B, G, E, C OR Z. Don't mumble when you're on the air. Get right up to the microphone at the proper distance. Have the microphone control set properly. Too high and your signal will splatter, too low and people won't hear you well. When conditions are bad, speak more slowly, and emphasize the important words. This is true both on H.F. and on fm repeaters. When giving your call sign always give your full call. Sometimes in a contest the distant operator will ask for only the last two

letters, but he is misinformed. However humor him.

Your next requirement is to have equipment that works properly. If you have a bad mike connection, a loose antenna connection, if your audio is distorted, etc, it makes operating a lot more difficult; and more frustrating. If something is broken fix it.

We'll hope this has been some help to you and I will attempt to find other good articles that will help the new ham and refresh things for the old ham...73...ed

Club Shack Work Days

Scott Sikes, KD4MSR, has accepted appointment as Shack Manager. Scott's current plans call for two Club Shack workdays on Saturday **March 7** and Saturday **March 14** at 8:30 a.m. If you would like to join in on the food and fellowship beforehand, you can meet for breakfast between 7:00 and 8:00 a.m. at the Mayflower Restaurant on Broad Street across from old North Campus in downtown Athens.

Tasks to be accomplished: thoroughly vacuum the shack, clean the chairs, take the trash (there's lots of it) to the dump, check the SWR and coax connections, grease the antenna rotor on the HF tri-band beam, pull weeds in the "yard", straighten out the concrete parking bars and trim the grass around the shack. We might paint the front and perhaps place a logo on the door. Please set aside a couple of hours of your morning to help out.



BORN AGAIN KITBUILDER

By Phil Koehler, KE4TYV

Nearly 33 years have elapsed since my last kit-building effort--a 5 band Heath-Kit GR78 general coverage SWL receiver featuring early transistor technology with analog tuning and bandspread. The Athens Radio Club's recent Discount Group Purchase from Ten-Tec enticed me to once again dabble in kit-building. I was hoping that the Ten-Tec T-kit line would offer the quality and completeness of instructions of the old HeathKits. Two kits, the Model 1202 HF/VHF SWR/RF Wattmeter and the 40M QRP transceiver were selected. The first was selected as a warm-up kit to sharpen assembly skills before attempting the more complex transceiver.

Both kits were picked up from Don WA4HML over the noon hour Tuesday Feb. 10. Of course it was necessary to take them home immediately for examination resulting a late return to work. Both kits were securely packed with the components neatly sealed inside the metal kit enclosure and zip-lock bagged. From a glance at the 32 page instruction manual for the Power/SWR meter kit, it appeared a good choice for a first kit. Previous kit-building had always resulted in at least one misplaced or improperly oriented component causing many hours of frustrating reworking or several cold solder joints resulting in intermittent operations. Determined to do it right this time, the temptation to sit down with the soldering iron immediately after work was resisted. A preliminary reading completely through the manual which covers briefly the theory of the circuits, schematics, circuit board illustrations and check-the-box instruction steps occupied the first evening. The next evening, another reading was made to insure each step was clear before starting. Thursday evening was occupied by practice soldering of 10 or 20 junk resistors and capacitors to a 99c Radio Shack project board. This turned out to be a valuable experience as I learned that if you are over 50

you will probably need to do soldering under a magnifier and a soldering iron with a reasonably fine tip is required.

Finally, on Friday evening, construction began in earnest. About an hour was devoted to checking each component off the parts list (it was complete) and arranging the resistors (19), capacitors (16), diodes (4), in groups by inserting them in a styrofoam block. The 4 IC op amps and the rest of the parts went into the pockets of muffin tins purloined from the kitchen. Another hour devoted to soldering components half-finished the main board. It could be done in much less time but I decided, in view of my frustrating experiences with kits 30 years ago, to examine every solder connection under a 3.5X magnifier and then to re-read each check-off step and re-check the component placement. Saturday morning another 2 hours completed the main board. The only other board, the switch board was small and completed in another hour Saturday evening. The point to point wiring and mechanical assembly required another hour Sunday afternoon. At this point considerably time was lost just sitting back and admiring the work before closing it up in the metal enclosure. Calibration against a known watt meter or a transmitter of known output required only about 10 minutes and consisted of adjusting 4 trimmer resistors. I calibrated power against 1 HF and 3 VHF rigs. Amazingly, the output of every rig agreed at the same specified output (50w or 10w for the VHF rigs). The SWR agreed favorably with both a MFJ SWR meter and a Kenwood TS850s reading. Finally, the black-finished heavy steel case was closed and the meter put to use. Hallelujah, at last, a kit that worked the first time it was switched on!!!! A kit builder is reborn.

A Talk With N4NFI

Editor's note. I thought an occasional interview might be interesting. Club President Ken Schroder, N4NFI, kindly agreed to be the first. I hope you enjoy reading this as much as I enjoyed talking to Ken.

Ken has lived in Athens since 1985. Ken and wife Pat (KE4VRP) both work at the University of Georgia. Ken works in the College of Pharmacy as the Facilities/Operations Manager and Pat works in the College of Veterinary Medicine as the Coordinator of the Clinical Immunology and Infectious Disease Lab. Ken and Pat married in 1995.

Emitter: Where did you grow up?

N4NFI: A suburb of Pittsburgh called Lower Burrell. We were about 22 miles up the Allegheny River from downtown, right across the river from a very large steel mill. A blue collar, industrial sort of place, lots of steel workers and coal miners. And lots of engineers, technicians, welders and machinists - who make technically resourceful hams. Our club designed and fabricated a 50 foot free standing tower for the HF beam out of sections of steel pipe that somebody got surplus from work.

Emitter: How did you get interested in ham radio?

N4NFI: I got interested with electronics and radio at a very young age. First, by "helping" my dad keep our old mid-fifties Dumont TV set going. That set ate lots of tubes. Next, my dad got me a crystal radio kit and we built that and strung up an antenna for it. Then I got interested in tuning the AM BCB, listening for distant stations. I started shortwave listening around age 10 or 12 and started messing around with CB in jr. high school. In high school, a friend of mine had his Novice, and his dad was a ham. So, I started going to

club meetings and some hamfests with them. When the club held a Novice class, I signed up and got WN3APE in 1975.

Emitter: How old were you?

N4NFI: I was 17 when I got my ticket.

Emitter: What happened to the WN3APE call? Everybody would remember that call!

N4NFI: In 1976, the FCC eliminated the distinctive "WN" novice calls. They sent me a new license, with the call WB3APE. In the mid seventies, the Novice license was a two year, non-renewable license. As I'm sure you remember, you had to do the General Class written, with only two local FCC administered exam sessions a year, with no question pools and no retries, to upgrade to Technician. I was in college, with lots going on and no time for upgrading by the time my expiration date arrived, so I was out. In '78 I read in QST that the FCC had decided that the Novice License would be a 5 year renewable license like all the other classes and that they would grandfather in anyone whose license had been expired less than a year. I sent in a 610 and they sent me back KA3DYE. I kept this call until 1980 when I upgraded to Technician. I wanted a 1x3 and they sent me N3BPA. 'BPA' was ok on cw but bad on phone, if somebody didn't know me they frequently came back with N3BBA, N3PBA, etc. I often ended up having to use phonetics to ID on repeaters! When I moved to Georgia in '85 I traded that one for N4NFI, which I guess I'll keep. Five different calls are probably enough for one lifetime.

Emitter: Did you have an Elmer?

N4NFI: Four actually: Don, K3ZCA (now KJ3Q) is my friend Ron's Dad. He got me going to club meetings and hamfests and set me up with a decent receiver and then a transmitter. Woody,

W3HQW, Adolph, W3GVI and Scotty, K3MRP were three real old timers who were always happy to answer a question and didn't mind having a kid hanging around their huge, old fashioned ham shacks. All except Don are silent keys now.

Emitter: What was your first rig?

N4NFI: My first real SWL receiver was a Knight Kit "Star Roamer" which I built around 1971 or so. Four tubes worth of what seemed at the time to be outstanding receiving performance - which it actually sort of was compared to the mid-sixties AM/FM/SW portable I had been using. For my first ham station I ran an Allied AX-190 receiver and a Heathkit DX-60B Transmitter to a 100 ft inverted "L" antenna. Eventually, I sold the rigs and have been kicking myself for years. I found a very clean AX-190 at the Stone Mountain Hamfest a couple of years ago - now if I can find a good DX-60 I'll have my first Novice station back.

Emitter: Do you still have the Knight Kit "Star Roamer"? Those have become collector items.

N4NFI: I know. Sadly, the Star Roamer is gone too. I hope to find one of those eventually as well. I've also had a Hammarlund Super Pro, a Hammarlund HQ110, plus a Johnson Ranger II transmitter, a Hallicrafters HT-9 transmitter and a Heathkit HW101 transceiver at one time or another - all gone. I have to quit selling stuff, I'm always sorry later. If I only had a larger shack...

Emitter: Any particularly memorable contacts?

N4NFI: My first, I guess. I worked WN2CLH in New Jersey, on 40 meters, right after school - I think it was the day after my license came in the mail. I still have the QSL. He gave me a 269 which probably says something about how shaky my fist was!

Emitter: What kind of HF rig and antenna are you using now?

N4NFI: A Yaesu FT-840 to a multi-wire 80-10 inverted V. A nice little radio, good receiver, including general coverage for SWLing and it gets good audio reports on transmit. Also, I DID keep my Kenwood R-1000 receiver for SWL'ing. I still do a lot of that.

Emitter: After looking at the last 20 plus years of ham radio, do you have any thoughts on the future of ham radio?

N4NFI: Wow, I could go on for a long time on this one. Answering these questions for you has served to remind me just how much has changed in amateur radio in the last 20 years or so. And I think the change in amateur radio will probably accelerate, given the technological, economic and social changes in the world around us. A lot of the change will be exciting, but many of us "old timers" will be unhappy with the loss of various "traditions" - old timers always have been and always will be. But we might as well try to keep a positive attitude about change and help to shape it, because we won't stop it in the long run. For example, the internet has changed us, positively and negatively. I think those who predict that it will kill amateur radio are wrong. It's a means of communication but its not RADIO, in the end, hams are, and by definition always will be, RADIO communications enthusiasts. There is an magical quality to radio and there will always be people who want to be hams. So hams can happily embrace the internet—it is obviously just as useful to us as it is to everyone else, it's not going away and it doesn't prevent anyone from doing what they like to do with radio.

(Thanks Ken)

Mini-Review

Ten-Tec HF-VHF SWR/RF
Wattmeter Model 1202

A number of things about this kit impressed me. First, EVERYTHING needed to assemble an attractive, complete operating unit was included right down to knobs and rubber feet. The check-off each step manual was nearly fool-proof and only a couple of steps--winding the toroid transformer and preparation of the tiny (~1/8") RG188/AU coax which passes through it required more than one reading of the step. Construction, calibration, and operation are all fully explained as well as the operating principles. I was never a fan of plastic and was much impressed by the black silk-screened heavy gauge steel cabinet supplied. The unit has enough heft (~2lbs.) to hold itself in place even with 4 coax cables attached to the rear panel. Actual construction required less than 6 hours but an experienced builder could easily do it in half that time.

Both an HF and a 2M rig can be left attached to the Power/SWR meter at all times. A toggle switch selects which transmitter will be read on the meter. Another switch selects power/swr. This meter differs from some in that the meter needle is not driven directly from the rectified sampled RF power but is amplified via the 4 op amps. This of course means that the meter requires power, either from the internal 9V battery or from an external 8-15 volt source--all connectors are supplied. The advantage is that the swr can be read directly with inputs as low as 1 watt.

With the ARC club discount (\$44, no shipping), the meter undoubtedly becomes competitive with anything on the market. I would certainly recommend it as an excellent kit for getting starting in building.

Phil Koehler, KE4TYV

QRZ? ... K4PYM

Editor's note: Recently I ran across George, K4PYM while reading the mail from the QRP listserver. George is from Athens and is a longtime ARC member. George has a voice "made for radio" but his first love is CW. I asked George to tell us what he's been up to these days.

I'm living in Walhalla, SC. "Garden of the Gods" which is in OCONEE COUNTY South Carolina—not far from Toccoa, Ga. I'm Working with Radio Station WGOG, Apple 96.3 Where I do a morning show, stand around awhile then leave. Also doing Advertising sales work in the afternoons. On the Ham Bands I'm still a fan of CW. Morse Code is my favorite. Seldom do any work on SSB or the other modes. I do remain active on VHF Packet. I try to keep up with the Athens group and do talk with them from time to time. In the past year, I've become afflicted with QRP. The lower the power, the better I like it. (It's primarily a Morse code model hehehe) I've been building several projects, a 30 meter Rig that will fit in an Altoids tin, several electronic keyers, even a set of Iambic Paddles for sending code. I enjoyed looking at the ARC web site. Hope everyone is active and having fun!

72 and 73

George K4PYM



**ARC Severe Weather
Net**
Monday thru
Friday
2 PM on the
club repeater
146.745/-

**Net Control is
Ken, WB4QII**
Training +
Practice =
Prepared



Phil Koehler, KE4TYV

Shortwave Listener's Logbook



By Scott Henderson Sikes
KD4MSR

Emitter editor Don Bullard, WA4IML, has asked me to once again begin my old *Emitter* column called "Shortwave Listener's Logbook." We'll begin this year's Logbook series by learning about my favorite international broadcaster, Radio Netherlands (RN), and we'll discuss my favorite program on RN, "Media Network." Of course, each of the stations I'll discuss in the column will broadcast in English and several other languages.

RN is the Dutch International Service, and they've been international shortwave broadcasters for over 50 years.



They have transmitter sites in the Netherlands (in northwestern Europe). Additionally, they relay their signals by satellite to other shortwave transmitter sites around the world and have

excellent, clear shortwave coverage of the world. The transmitters I listen to are 6.020 MHz (or 6,020 kHz) from the Flevoland Polder in the Netherlands and 6.165 MHz (or 6,165 kHz) from the island of Bonaire in the Netherlands Antilles Islands in the Caribbean Sea. Remember when using megahertz, we capitalize both the M and the H. The H is capitalized to honor German scientist Heinrich Hertz who studied frequency oscillations. But when we use kilohertz, we capitalize only the H, not the K. By the way, a polder is a piece of land reclaimed from the sea in the Dutch fashion of building dikes. Both of the transmitter sites I've mentioned broadcast using 250,000 Watts to a curtain array antenna (which needs a lot of wire and land!). If you can't pick up these signals about S9, you've got problems with your radio! Any flimsy portable shortwave receiver will do the job, oftentimes with the antenna stowed away.

Media Network comes on the air at 7:54 p.m. Thursday nights Eastern Standard Time. If you're a UTC nut, the show comes on at 00:54 Friday UTC. UTC stands for Coordinated Universal Time--the same thing as Greenwich Mean Time (GMT) or Zulu Time (Z).

Media Network began as a shortwave listener (SWL) or DXer program. A "DXer" is someone who likes to listen to (or contact) distant stations. DX is an old land telegraphers' term for distance. Media Network has grown to become a broad review of international broadcasting and radio equipment by medium wave, shortwave, satellite, and the Internet. The program is hosted by Diana Janssen and Jonathan Marks. These two have forgotten more about radio than most of us will ever learn. They travel to electronics and computer shows and hamfests world wide to review the latest equipment

and trends in electronic communications. They discuss the latest gadgets, radios, the latest news on the ionosphere, sunspots, and more. Diana and Jonathan end each show with a weekly propagation report. By listening, you'll learn what an "estimated planetary A index" is--and what the heck is a "geomagnetic disturbance?" Incidentally, on the 26th of February, 1998, they'll feature a special program on lightning.

Contact the station for a free, color program schedule and a sticker: RNI, P.O. Box 222, Hilversum, The Netherlands. Or send them e-mail: letters@rnw.nl or check out their web site: www.rnw.nl and see their "real radio" section. You may telephone them at 31-35-6724-222.

If you're a true radio and world wide web enthusiast, Diana and Jonathan suggest you check out the web site: www.jingleweb.com This is a web site with old and contemporary radio jingles.

Well, that's all for this month. I'll see you at the Mayflower Restaurant Saturday mornings at 7:00. 73 ES GUD
DX DE KD4MSR

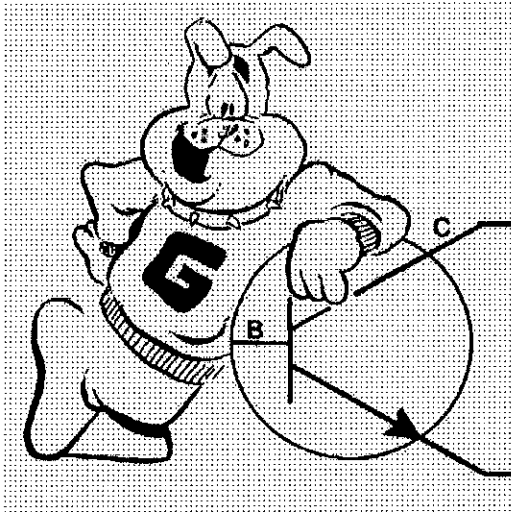
Upcoming Events

Hamfest Calendar

February 28: Dalton, GA
March 7-8: Charlotte, NC
March 21: Marietta, GA
March 28: Columbus, GA

Contests

28March1: CQWW 160-SSB
March7-8: ARRL International DX



Inside:

- ♦ **Ham Radio— A Hobby or a Service**
- ♦ **Shortwave Listener's Logbook**
- ♦ **Born Again Kitbuilder**
- ♦ **Review of the TenTec 1202 Wattmeter**

Athens Radio Club
P.O. Box 29
Winterville, GA 30683-0029

Open Immediately...Important Material Enclosed!